Safety Data Sheet

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Document Group:	08-7211-9	**Version Number:**	6.05
Issue Date:	08/15/22	**Supercedes Date:**	05/03/21

Product identifier
QS2013-3T-3C Transition Splice Kit (Resin 4N)

ID Number(s):

80-6109-8293-8

7100017405

Recommended use
Electrical, SPLICING MEDIUM VOLTAGE LEAD SHEATHED POWER CABLE

Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

This product is a kit or a multipart product which consists of multiple, independently packaged components. A Safety Data Sheet (SDS), Article Information Sheet (AIS), or Article Information Letter (AIL) for each of these components is included. Please do not separate the component documents from this cover page. The document numbers for components of this product are:

24-9848-3, 34-7684-3, 06-4861-8, 40-0153-3, 05-4288-6, 35-7972-9

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Safety Data Sheet

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Document Group:	24-9848-3	**Version Number:**	5.01
Issue Date:	11/06/25	**Supersedes Date:**	04/03/25

SECTION 1: Identification

1.1. Product identifier
3M™ Scotchcast™ Electrical Insulating Resin 4N, Part A and 3M™ Scotchcast™ Electrical Insulating Resin 4, Part A

1.2. Recommended use and restrictions on use

Recommended use
Electrical, Part A of Resin 4 & Resin 4N

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Serious Eye Damage/Irritation: Category 2B.
Skin Sensitizer: Category 1.
Reproductive Toxicity: Category 1B.

2.2. Label elements
Signal word
Danger

Symbols
Exclamation mark |Health Hazard |

Pictograms



Hazard Statements

Causes eye irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.

Precautionary statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing vapors.
Wash exposed skin thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.

Response:
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical attention.
If eye irritation persists or if skin irritation or rash occurs: Get medical attention.
Take off contaminated clothing and wash it before reuse.

Storage:
Store locked up.

Disposal:
Dispose of contents and container in accordance with applicable local, regional, national, and international regulations.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	25085-99-8	80 - 100 Trade Secret *
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	68609-97-2	3 - 7 Trade Secret *

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Allergic skin reaction (redness, swelling, blistering, and itching).

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Toxic Vapor, Gas, Particulate	During Combustion

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS.

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety Glasses with side shields
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Resin
Color	Amber
Odor	Mild Epoxy
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	>= 93.9 ºC
Flash Point	>= 93.9 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	<= 186,158.4 Pa [@ 55 ºC]
Relative Vapor Density	*No Data Available*
Density	1.16 g/ml
Relative Density	1.16 [*Ref Std:*WATER=1]
Water solubility	Negligible
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	3,879 mm2/sec
Volatile Organic Compounds	*No Data Available*
Percent volatile as Text	Negligible
VOC Less H2O & Exempt Solvents	*No Data Available*
Average particle size	*No Data Available*
Bulk density	*No Data Available*
Molecular weight	*No Data Available*
Softening point	*No Data Available*

Particle Characteristics	*Not Applicable*

SECTION 10: Stability and reactivity

10.1. Reactivity
This material is considered to be non reactive under normal use conditions.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Dermal	Rat	LD50 > 1,600 mg/kg
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	Rat	LD50 > 1,000 mg/kg
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Dermal	Rabbit	LD50 > 4,000 mg/kg
OXIRANE, MONO[(C12-14-	Ingestion	Rat	LD50 > 2,000 mg/kg

ALKYLOXY)METHYL]DERIVATIVES			

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Rabbit	Mild irritant
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Rabbit	Moderate irritant
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Human and animal	Sensitizing
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Guinea pig	Sensitizing

Respiratory Sensitization

Name	Species	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	In vivo	Not mutagenic
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	In vivo	Not mutagenic
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Ingestion	Not classified for male reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Dermal	Not classified for development	Rat	NOAEL 200 mg/kg/day	during organogenesi

					s
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Ingestion	Not classified for development	Rabbit	NOAEL 375 mg/kg/day	during gestation
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Ingestion	Toxic to female reproduction	Rat	NOAEL 10 mg/kg/day	2 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL]DERIVATIVES	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
2,2-Bis(p-hydroxyphenyl)propane diglycidyl ether polymer	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	nervous system	Not classified	Rat	NOAEL 100 mg/kg/day	14 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	respiratory system	Not classified	Rat	NOAEL 100 mg/kg/day	14 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	blood	Not classified	Rat	NOAEL 100 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	liver	Not classified	Rat	NOAEL 100 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	eyes	Not classified	Rat	NOAEL 100 mg/kg/day	13 weeks

OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Dermal	kidney and/or bladder	Not classified	Rat	NOAEL 100 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Ingestion	immune system	Not classified	Rat	NOAEL 750 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 100 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 750 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Ingestion	nervous system	Not classified	Rat	NOAEL 750 mg/kg/day	13 weeks
OXIRANE, MONO[(C12-14-ALKYLOXY)METHYL] DERIVATIVES	Ingestion	eyes	Not classified	Rat	NOAEL 750 mg/kg/day	13 weeks

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not Applicable.

Health Hazards
Reproductive toxicity
Respiratory or Skin Sensitization
Serious eye damage or eye irritation

15.2. State Regulations

Contact 3M for more information.

15.3. Chemical Inventories

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification

Health: 2 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: *2 **Flammability:** 1 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV program. HMIS® is a registered mark of the American Coatings Association (ACA).

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Issue Date:	11/06/25	**Supersedes Date:**	04/03/25

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This Article Information Sheet is provided as a courtesy in response to a customer request. A Safety Data Sheet (SDS) has not been prepared for these product(s) because they are articles. Articles are not subject to the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200(b)(6)(v)). As defined in this standard: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Document Group:	05-4288-6	**Version Number:**	1.02
Issue Date:	04/30/21	**Supercedes Date:**	08/09/19

SECTION 1: Identification

1.1. Product identifier
Scotch-Seal™ Tapes, Pads, and Strips 2229

Product Identification Numbers

ID Number	UPC	ID Number	UPC
80-0000-0789-0		80-6109-2897-2	00-54007-42919-7
80-6114-3998-7	000-51128-57398-3	80-6114-5741-9	000-51128-58596-2

7010397013, 7010349783

1.2. Recommended use and restrictions on use

Recommended use
Electrical insulating and moisture seal, Moisture and Corrosion Protection

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

This product is exempt from hazard classification according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Nonregulated Fillers	Mixture	50 - 60
Synthetic Rubber Mixture	Mixture	30 - 40
Asphalt	8052-42-4	5 - 12
Carbon Black	1333-86-4	1 - 5

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
No need for first aid is anticipated.

Skin Contact:
No need for first aid is anticipated.

Eye Contact:
No need for first aid is anticipated.

If Swallowed:
No need for first aid is anticipated.

SECTION 5: Fire-fighting measures

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Not applicable.

6.2. Environmental precautions
Not applicable.

6.3. Methods and material for containment and cleaning up
Not applicable.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

SECTION 8: Exposure controls/personal protection

This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. No engineering controls or personal protective equipment (PPE) are necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid
Color	Black
Specific Physical Form:	Rubber tape strip or pad with paper liner
Odor	Rubber
Odor threshold	*Not Applicable*
pH	*Not Applicable*
Melting point	*No Data Available*
Boiling Point	*Not Applicable*
Flash Point	*No Data Available*
Evaporation rate	*Not Applicable*
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	*Not Applicable*
Vapor Density	*Not Applicable*
Specific Gravity	Approximately 1.2 [*Test Method:*Tested per ASTM protocol] [*Ref Std:*WATER=1]
Solubility in Water	Nil
Solubility- non-water	*Not Applicable*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*Not Applicable*
Viscosity	*Not Applicable*
Molecular weight	*No Data Available*
Volatile Organic Compounds	*No Data Available*
Percent volatile	*No Data Available*
Percent volatile	Nil
VOC Less H2O & Exempt Solvents	*Not Applicable*

SECTION 10: Stability and reactivity

This material is considered to be non reactive under normal use conditions.

SECTION 11: Toxicological information

Inhalation:
No health effects are expected

Skin Contact:
No health effects are expected

Eye Contact:
No health effects are expected

Ingestion:
No health effects are expected

Additional Information:
This product, when used under reasonable conditions and in accordance with the directions for use, should not present a

health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

SECTION 12: Ecological information

This article is expected to present a low environmental risk either because use and disposal are unlikely to result in a significant release of components to the environment or because those components that may be released are expected to have insignificant environmental impact.

SECTION 13: Disposal considerations

Dispose of contents/container in accordance with the local/regional/national/international regulations.

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

Chemical Inventories
This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory requirements.

SECTION 16: Other information

NFPA Hazard Classification
Health: 0 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Document Group:	05-4288-6	**Version Number:**	1.02
Issue Date:	04/30/21	**Supercedes Date:**	08/09/19

Reason for Reissue
Conversion to GHS format SDS.

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Article Information Sheet

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This Article Information Sheet is provided as a courtesy in response to a customer request. A Safety Data Sheet (SDS) has not been prepared for these product(s) because they are articles. Articles are not subject to the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200(b)(6)(v)). As defined in this standard: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Document Group:	34-7684-3	**Version Number:**	3.11
Issue Date:	04/03/26	**Supersedes Date:**	05/07/25

SECTION 1: Identification

1.1. Product identifier
Black EPDM Tubing (on plastic core) ==>(LH-A100-1762-5)

Product Identification Numbers
80-6105-9742-1, 80-6105-9752-0, 80-6105-9755-3, 80-6105-9759-5, 80-6105-9760-3, 80-6105-9763-7, 80-6107-3565-8, 80-6107-4803-2, 80-6108-3339-6, 80-6108-3644-9, 80-6109-2831-1, 80-6112-1759-9, 80-6116-1725-1
7100035543, 7100165600, 7100042494, 7000058441, 7100164410, 7100164352, 7100164350, 7000132491, 7100164347, 7100164341

1.2. Recommended use and restrictions on use

Recommended use
Electrical

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

This product is exempt from hazard classification according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Black EPDM Tubing Composite	None	100

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
No need for first aid is anticipated.

Skin Contact:
No need for first aid is anticipated.

Eye Contact:
No need for first aid is anticipated.

If Swallowed:
No need for first aid is anticipated.

SECTION 5: Fire-fighting measures

In case of fire: Use a carbon dioxide or dry chemical extinguisher to extinguish.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Not applicable.

6.2. Environmental precautions
Not applicable.

6.3. Methods and material for containment and cleaning up
Not applicable.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

SECTION 8: Exposure controls/personal protection

This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. No engineering controls or personal protective equipment (PPE) are necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid

Color	Black
Odor	Mild Rubber
Odor threshold	*Not Applicable*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	*Not Applicable*
Flash Point	No flash point
Evaporation rate	*Not Applicable*
Flammability	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Relative Vapor Density	*Not Applicable*
Density	*No Data Available*
Relative Density	*No Data Available*
Water solubility	*Not Applicable*
Solubility- non-water	*Not Applicable*
Partition coefficient: n-octanol/ water	*Not Applicable*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	*Not Applicable*
Volatile Organic Compounds	*No Data Available*
Percent volatile	*No Data Available*
VOC Less H2O & Exempt Solvents	*No Data Available*
Molecular weight	*Not Applicable*

Particle Characteristics	*Not Applicable*

SECTION 10: Stability and reactivity

This material is considered to be non reactive under normal use conditions.

SECTION 11: Toxicological information

Inhalation:
No health effects are expected

Skin Contact:
No health effects are expected

Eye Contact:
No health effects are expected

Ingestion:
No health effects are expected

Additional Information:
This product, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

SECTION 12: Ecological information

This article is expected to present a low environmental risk either because use and disposal are unlikely to result in a significant release of components to the environment or because those components that may be released are expected to have insignificant environmental impact.

SECTION 13: Disposal considerations

Dispose of contents/container in accordance with the local/regional/national/international regulations.

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

Chemical Inventories
This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory requirements.

SECTION 16: Other information

NFPA Hazard Classification
Health: 0 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Document Group:	34-7684-3	**Version Number:**	3.11
Issue Date:	04/03/26	**Supersedes Date:**	05/07/25

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Safety Data Sheet

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Document Group:	35-7972-9	**Version Number:**	3.00
Issue Date:	12/08/25	**Supersedes Date:**	11/07/25

SECTION 1: Identification

1.1. Product identifier
3M™ Scotchcast™ Electrical Insulating Resin 4N, Part B

1.2. Recommended use and restrictions on use

Recommended use
Electrical, Part B of Resin 4N

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Acute Toxicity (oral): Category 4.
Skin Corrosion/Irritation: Category 1B.
Serious Eye Damage/Irritation: Category 1.
Skin Sensitizer: Category 1.
Carcinogenicity: Category 1B.
Reproductive Toxicity: Category 2.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements
Signal word
Danger

Symbols
Corrosion |Exclamation mark |Health Hazard |

Pictograms



Hazard Statements

Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause cancer.
Suspected of damaging fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure: blood or blood-forming organs | respiratory system.
May cause damage to organs through prolonged or repeated exposure: endocrine system | gastrointestinal tract | immune system | kidney/urinary tract | liver.

Precautionary statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe vapors.
Wash exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves, protective clothing, eye protection, face protection, and if needed, respiratory protection (see SDS Section 8).

Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Immediately call a POISON CENTER or doctor.
Get medical attention if you feel unwell.
If skin irritation or rash occurs: Get medical attention.
Take off contaminated clothing and wash it before reuse.

Storage:
Store locked up.

Disposal:
Dispose of contents and container in accordance with applicable local, regional, national, and international regulations.

2.3. Hazards not otherwise classified
May cause chemical gastrointestinal burns.

Supplemental Information:
Persons previously sensitized to amines may develop a cross-sensitization reaction to certain other amines.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Styrenated Phenol	61788-44-1	15 - 40 Trade Secret *
Alkyl Acids, Reaction Products With Triethylenetetramine	68919-79-9	10 - 30 Trade Secret *
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	64742-11-6	10 - 30 Trade Secret *
N-AMINOETHYLPIPERAZINE	140-31-8	10 - 30 Trade Secret *
Alykl Acids, Reaction Products With TETA And DGEBA	Trade Secret*	4 - 10
Reaction product of cycloaliphatic amine with aromatic epoxy resin	Trade Secret*	1 - 8
PETROLEUM DISTILLATES	64741-81-7	3 - 7 Trade Secret *
Thermal cracked residuum (petroleum)	64741-80-6	3 - 7 Trade Secret *
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	90-72-2	1 - 5 Trade Secret *
TRIETHYLENETETRAMINE	112-24-3	0.1 - 2
BIS[(DIMETHYLAMINO)METHYL]PHENOL	71074-89-0	0.1 - 1 Trade Secret *
CARBON BLACK	1333-86-4	0.1 - 1 Trade Secret *

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Immediately flush with large amounts of water for at least 15 minutes. Remove contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

Eye Contact:
Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If Swallowed:
Rinse mouth. Do not induce vomiting. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Skin burns (localized redness, swelling, itching, intense pain, blistering, and tissue destruction). Allergic skin reaction (redness, swelling, blistering, and itching). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Amine Compounds	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
No special protective actions for fire-fighters are anticipated.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. For large spills, if necessary, get assistance from professional spill clean up team. For small spills, carefully neutralize spill by adding appropriate dilute acid such as vinegar. Work slowly to avoid boiling or spattering. Continue to add neutralizing agent until reaction stops. Let cool before collecting. Or use a commercially available caustic (alkaline or basic) spill clean-up kit. Follow kit directions exactly. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
Store away from acids.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
TRIETHYLENETETRAMINE	112-24-3	AIHA	TWA:6 mg/m3(1 ppm)	SKIN
CARBON BLACK	1333-86-4	ACGIH	TWA(inhalable fraction):3 mg/m3	A3: Confirmed animal carcin.
CARBON BLACK	1333-86-4	OSHA	TWA:3.5 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Full Face Shield
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

For prolonged or repeated contact, gloves made from the following material(s) are recommended (breakthrough times are >4 hours): Butyl Rubber

Any glove recommended for prolonged/repeated contact is also suitable for short-term/splash contact.

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Resin
Color	Black
Odor	Moderate Amine
Odor threshold	*No Data Available*
pH	10 - 12
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	319.4 ºC
Flash Point	No flash point
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	533.3 Pa
Relative Vapor Density	*No Data Available*
Density	1.03 g/ml
Relative Density	1.03 [*Ref Std:*WATER=1]
Water solubility	660 ppm [@ 77 ºF]
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	4,369 mm2/sec
Volatile Organic Compounds	*No Data Available*
Percent volatile	3 - 5 %
VOC Less H2O & Exempt Solvents	*No Data Available*
Average particle size	*No Data Available*
Bulk density	*No Data Available*
Molecular weight	*Not Applicable*

Particle Characteristics	*Not Applicable*

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
Strong acids

No Data Available

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
May be harmful if inhaled. Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
May be harmful in contact with skin.
Corrosive (Skin Burns): Signs/symptoms may include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion:
Harmful if swallowed. Gastrointestinal Corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain; nausea; vomiting; and diarrhea; blood in the feces and/or vomitus may also be seen.

May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Hematopoietic Effects: Signs/symptoms may include generalized weakness, fatigue and alterations in numbers of circulating blood cells.

Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and

jaundice.

Immunological Effects: Signs/symptoms may include alterations in the number of circulating immune cells, allergic skin and /or respiratory reaction, and changes in immune function.

Gastrointestinal Effects: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Endocrine Effects: Signs/symptoms may include disruption of gonadal, thyroid, adrenal, or pancreatic function; changes in hormone production; alterations in circulating hormone levels; and/or changes in tissue response to hormones.

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Ingredient	CAS No.	Class Description	Regulation
Fuel oils, residual (heavy)	64741-80-6	Grp. 2B: Possible human carc.	International Agency for Research on Cancer
Fuel oils, residual (heavy)	64741-81-7	Grp. 2B: Possible human carc.	International Agency for Research on Cancer
Carbon black	1333-86-4	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Additional Information:
Persons previously sensitized to amines may develop a cross-sensitization reaction to certain other amines.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >2,000 - =5,000 mg/kg
Overall product	Inhalation-Dust/Mist(4 hr)		No data available; calculated ATE >5 - =12.5 mg/l
Overall product	Ingestion		No data available; calculated ATE >300 - =2,000 mg/kg
Styrenated Phenol	Dermal	Rat	LD50 > 2,000 mg/kg
Styrenated Phenol	Ingestion	Rat	LD50 > 2,000 mg/kg
N-AMINOETHYLPIPERAZINE	Dermal	Rabbit	LD50 865 mg/kg
N-AMINOETHYLPIPERAZINE	Ingestion	Rat	LD50 1,470 mg/kg
Alkyl Acids, Reaction Products With Triethylenetetramine	Ingestion	Rat	LD50 > 2,000 mg/kg
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	similar compounds	LD50 > 3,000 mg/kg
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 > 5 mg/l
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Ingestion	similar compounds	LD50 > 5,000 mg/kg
Alkyl Acids, Reaction Products With Triethylenetetramine	Dermal	similar health hazards	LD50 estimated to be > 5,000 mg/kg

PETROLEUM DISTILLATES	Dermal	similar compounds	LD50 > 2,000 mg/kg
PETROLEUM DISTILLATES	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 4.1 mg/l
PETROLEUM DISTILLATES	Ingestion	similar compounds	LD50 4,320 mg/kg
Thermal cracked residuum (petroleum)	Dermal	similar compounds	LD50 > 2,000 mg/kg
Thermal cracked residuum (petroleum)	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 4.1 mg/l
Thermal cracked residuum (petroleum)	Ingestion	similar compounds	LD50 4,320 mg/kg
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	Rat	LD50 1,280 mg/kg
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	Rat	LD50 1,000 mg/kg
TRIETHYLENETETRAMINE	Dermal	Rat	LD50 1,465 mg/kg
TRIETHYLENETETRAMINE	Ingestion	Rat	LD50 1,591 mg/kg
BIS[(DIMETHYLAMINO)METHYL]PHENOL	Ingestion		LD50 estimated to be 300 - 2,000 mg/kg
CARBON BLACK	Dermal	Rabbit	LD50 > 3,000 mg/kg
CARBON BLACK	Ingestion	Rat	LD50 > 8,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Styrenated Phenol	Rabbit	No significant irritation
N-AMINOETHYLPIPERAZINE	Rabbit	Corrosive
Alkyl Acids, Reaction Products With Triethylenetetramine	In vitro data	No significant irritation
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	similar compounds	Mild irritant
PETROLEUM DISTILLATES	similar compounds	No significant irritation
Thermal cracked residuum (petroleum)	similar compounds	No significant irritation
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Rabbit	Corrosive
TRIETHYLENETETRAMINE	Rabbit	Corrosive
BIS[(DIMETHYLAMINO)METHYL]PHENOL	similar compounds	Corrosive
CARBON BLACK	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Styrenated Phenol	Rabbit	Mild irritant
N-AMINOETHYLPIPERAZINE	Rabbit	Corrosive
Alkyl Acids, Reaction Products With Triethylenetetramine	In vitro data	Severe irritant
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	similar compounds	No significant irritation
PETROLEUM DISTILLATES	similar compounds	Mild irritant
Thermal cracked residuum (petroleum)	similar compoun	Mild irritant

	ds	
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Rabbit	Corrosive
TRIETHYLENETETRAMINE	Rabbit	Corrosive
BIS[(DIMETHYLAMINO)METHYL]PHENOL	similar compounds	Corrosive
CARBON BLACK	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
Styrenated Phenol	Mouse	Sensitizing
N-AMINOETHYLPIPERAZINE	Guinea pig	Sensitizing
Alkyl Acids, Reaction Products With Triethylenetetramine	Guinea pig	Sensitizing
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	similar compounds	Not classified
PETROLEUM DISTILLATES	Guinea pig	Not classified
Thermal cracked residuum (petroleum)	similar compounds	Not classified
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Guinea pig	Not classified
TRIETHYLENETETRAMINE	Guinea pig	Sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
N-AMINOETHYLPIPERAZINE	In vivo	Not mutagenic
N-AMINOETHYLPIPERAZINE	In Vitro	Some positive data exist, but the data are not sufficient for classification
Alkyl Acids, Reaction Products With Triethylenetetramine	In Vitro	Not mutagenic
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	In Vitro	Some positive data exist, but the data are not sufficient for classification
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	In vivo	Some positive data exist, but the data are not sufficient for classification
PETROLEUM DISTILLATES	In Vitro	Some positive data exist, but the data are not sufficient for classification
Thermal cracked residuum (petroleum)	In Vitro	Some positive data exist, but the data are not sufficient for classification
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	In Vitro	Not mutagenic
TRIETHYLENETETRAMINE	In vivo	Not mutagenic
TRIETHYLENETETRAMINE	In Vitro	Some positive data exist, but the data are not sufficient for classification
CARBON BLACK	In Vitro	Not mutagenic
CARBON BLACK	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	similar compounds	Carcinogenic
PETROLEUM DISTILLATES	Dermal	similar compounds	Carcinogenic
Thermal cracked residuum (petroleum)	Dermal	similar compoun	Carcinogenic

		ds	
TRIETHYLENETETRAMINE	Dermal	Mouse	Not carcinogenic
CARBON BLACK	Dermal	Mouse	Not carcinogenic
CARBON BLACK	Ingestion	Mouse	Not carcinogenic
CARBON BLACK	Inhalation	Rat	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
N-AMINOETHYLPIPERAZINE	Ingestion	Not classified for female reproduction	Rat	NOAEL 598 mg/kg/day	premating & during gestation
N-AMINOETHYLPIPERAZINE	Ingestion	Not classified for male reproduction	Rat	NOAEL 409 mg/kg/day	32 days
N-AMINOETHYLPIPERAZINE	Ingestion	Toxic to development	Rabbit	NOAEL 75 mg/kg/day	during gestation
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Ingestion	Not classified for male reproduction	similar compounds	NOAEL 125 mg/kg/day	13 weeks
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	Toxic to development	similar compounds	NOAEL 5 mg/kg/day	during gestation
PETROLEUM DISTILLATES	Dermal	Toxic to development	similar compounds	NOAEL 0.05 mg/kg/day	during gestation
Thermal cracked residuum (petroleum)	Dermal	Toxic to development	similar compounds	NOAEL 0.05 mg/kg/day	during gestation
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	Not classified for male reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	Not classified for female reproduction	Rat	NOAEL 50 mg/kg/day	2 generation
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	Not classified for development	Rabbit	NOAEL 15 mg/kg/day	during gestation
TRIETHYLENETETRAMINE	Dermal	Not classified for development	Rabbit	NOAEL 125 mg/kg/day	during organogenesis
TRIETHYLENETETRAMINE	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
N-AMINOETHYLPIPERAZINE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Alkyl Acids, Reaction Products With Triethylenetetramine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
TRIETHYLENETETRAM	Inhalation	respiratory irritation	Some positive data exist, but the	similar	NOAEL Not	

INE			data are not sufficient for classification	health hazards	available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
N-AMINOETHYLPIPERAZINE	Dermal	skin	Not classified	Rat	NOAEL 100 mg/kg/day	29 days
N-AMINOETHYLPIPERAZINE	Dermal	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	29 days
N-AMINOETHYLPIPERAZINE	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	29 days
N-AMINOETHYLPIPERAZINE	Dermal	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	29 days
N-AMINOETHYLPIPERAZINE	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.2 mg/m3	13 weeks
N-AMINOETHYLPIPERAZINE	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 53.8 mg/m3	13 weeks
N-AMINOETHYLPIPERAZINE	Inhalation	eyes	Not classified	Rat	NOAEL 53.8 mg/m3	13 weeks
N-AMINOETHYLPIPERAZINE	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 53.8 mg/m3	13 weeks
N-AMINOETHYLPIPERAZINE	Ingestion	heart	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
N-AMINOETHYLPIPERAZINE	Ingestion	endocrine system	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
N-AMINOETHYLPIPERAZINE	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
N-AMINOETHYLPIPERAZINE	Ingestion	liver	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
N-AMINOETHYLPIPERAZINE	Ingestion	nervous system	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
N-AMINOETHYLPIPERAZINE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 598 mg/kg/day	28 days
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	endocrine system	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	gastrointestinal tract	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	hematopoietic system	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	liver	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM	Dermal	immune system	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days

EXTRACTS						
HEAVY NAPHTHENIC DISTILLATE SOLVENT PETROLEUM EXTRACTS	Dermal	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	similar compounds	LOAEL 30 mg/kg/day	90 days
PETROLEUM DISTILLATES	Dermal	hematopoietic system	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL 1.06 mg/kg/day	13 weeks
PETROLEUM DISTILLATES	Dermal	liver	May cause damage to organs though prolonged or repeated exposure	similar compounds	NOAEL 10.6 mg/kg/day	13 weeks
PETROLEUM DISTILLATES	Dermal	immune system	May cause damage to organs though prolonged or repeated exposure	similar compounds	NOAEL 10.6 mg/kg/day	13 weeks
Thermal cracked residuum (petroleum)	Dermal	hematopoietic system	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL 1.06 mg/kg/day	13 weeks
Thermal cracked residuum (petroleum)	Dermal	liver	May cause damage to organs though prolonged or repeated exposure	similar compounds	NOAEL 10.6 mg/kg/day	13 weeks
Thermal cracked residuum (petroleum)	Dermal	immune system	May cause damage to organs though prolonged or repeated exposure	similar compounds	NOAEL 10.6 mg/kg/day	13 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	skin	Not classified	Rat	NOAEL 25 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	liver	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	nervous system	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	auditory system	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	hematopoietic system	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Dermal	eyes	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	heart	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	endocrine system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	liver	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	muscles	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	nervous system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	respiratory system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	vascular system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days

TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	auditory system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	skin	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	immune system	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL	Ingestion	eyes	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
CARBON BLACK	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard

Name	Value
PETROLEUM DISTILLATES	Aspiration hazard
Thermal cracked residuum (petroleum)	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not Applicable.

Health Hazards
Acute toxicity
Carcinogenicity
Hazard Not Otherwise Classified (HNOC)
Reproductive toxicity
Respiratory or Skin Sensitization
Serious eye damage or eye irritation
Skin Corrosion or Irritation
Specific target organ toxicity (single or repeated exposure)

15.2. State Regulations

Contact 3M for more information.

California Proposition 65

Ingredient	C.A.S. No.	Listing
Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils)	None	Carcinogen

15.3. Chemical Inventories

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification

Health: 3 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: *3 **Flammability:** 1 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV program. HMIS® is a registered mark of the American Coatings Association (ACA).

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Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier
3M™ P55/R Lubricant, Red

1.2. Recommended use and restrictions on use

Recommended use
Electrical, ELECTRICAL LUBRICATING GREASE

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Electrical Markets Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

2.2. Label elements
Signal word
Not applicable.

Symbols
Not applicable

Pictograms
Not applicable

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Perfluropolyether fluid	Trade Secret*	95 - 98
Filler	Trade Secret*	<= 4

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you are concerned, get medical advice.

Skin Contact:
Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:
Do not induce vomiting. Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
Exposure to extreme heat can give rise to thermal decomposition. None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Fluoride	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Ventilate the area with fresh air. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to

sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not breathe thermal decomposition products. For industrial/occupational use only. Not for consumer sale or use. Avoid release to the environment. Keep away from reactive metals (eg. Aluminum, zinc etc.) to avoid the formation of hydrogen gas that could create an explosion hazard.

7.2. Conditions for safe storage including any incompatibilities
Store away from acids. Store away from strong bases.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Filler	Trade Secret	OSHA	TWA:20 millions of particles/cu. ft.;TWA concentration:0.8 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection
None required.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Gloves made from the following material(s) are recommended: Neoprene

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Paste
Color	Red
Odor	Odorless
Odor threshold	*Not Applicable*
pH	*Not Applicable*
Melting point/Freezing point	*Not Applicable*
Boiling point/Initial boiling point/Boiling range	270 ºC [*Details:*MITS data (per supplier info)]
Flash Point	Flash point > 93 °C (200 °F)
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	<=0.01 mmHg
Relative Vapor Density	*No Data Available*
Density	*No Data Available*
Relative Density	Approximately 1.99 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*Not Applicable*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*Not Applicable*
Kinematic Viscosity	*No Data Available*
Volatile Organic Compounds	*No Data Available*
Percent volatile	0 %
VOC Less H2O & Exempt Solvents	*No Data Available*
Average particle size	*No Data Available*

Bulk density	*No Data Available*
Molecular weight	*No Data Available*
Softening point	*No Data Available*

Particle Characteristics	*Not Applicable*

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Not determined

10.5. Incompatible materials
Strong acids
Strong bases
Reactive metals

No Data Available

10.6. Hazardous decomposition products

Substance	**Condition**
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
No known health effects.

Skin Contact:

Contact with the skin during product use is not expected to result in significant irritation.

Eye Contact:
Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion:
No known health effects.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Perfluropolyether fluid	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Perfluropolyether fluid	Ingestion	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg
Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Filler	Ingestion	Rat	LD50 > 5,110 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Filler	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Filler	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
Filler	Human and animal	Not classified

Respiratory Sensitization
For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Filler	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Filler	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure
For the component/components, either no data are currently available or the data are not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Filler	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Filler	Inhalation	silicosis	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Prior to disposal, consult all applicable authorities and regulations to insure proper classification. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty and clean product containers may be disposed as non-hazardous waste. Consult your specific regulations and service providers to determine available options and requirements.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not Applicable.

Health Hazards
Not Applicable.

15.2. State Regulations

Contact 3M for more information.

15.3. Chemical Inventories

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification

Health: 3 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride. During normal use conditions, please reference Section 2 and Section 11 of the SDS for additional health hazard information.

HMIS Hazard Classification

Health: 0 **Flammability:** 1 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV

program. HMIS® is a registered mark of the American Coatings Association (ACA).

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Conversion to GHS format SDS.

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Safety Data Sheet

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Document Group:	40-0153-3	**Version Number:**	1.00
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SECTION 1: Identification

1.1. Product identifier
3M SHEATH WRAP ROLL

1.2. Recommended use and restrictions on use

Recommended use
Industrial use

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	3M Poland Electronics & Energy Business Spons
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Respiratory Sensitizer: Category 1.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements
Signal word
Danger

Symbols
Health Hazard |

Pictograms



Hazard Statements
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

Causes damage to organs through prolonged or repeated exposure:
respiratory system |

Precautionary Statements

Prevention:
Do not breathe dust/fume/gas/mist/vapors/spray.
In case of inadequate ventilation wear respiratory protection.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:
IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Get medical advice/attention if you feel unwell.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Supplemental Information:
Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Oxide glass chemicals	65997-17-3	40 - 70
4,4'-DIPHENYLMETHANE DIISOCYANATE-POLYPROPYLENE GLYCOL POLYMER	Trade Secret*	30 - 60
IRON OXIDE (FE3O4)	1317-61-9	1 - 5
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	1 - 5 Trade Secret *
Diphenylmethane-2,4'-diisocyanate	5873-54-1	0.5 - 1.5 Trade Secret *
CHROMIUM (CR+6)	18540-29-9	0.001 - 0.02

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Cyanide	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. Collect as much of the spilled material as possible. Place in a container approved for transportation by appropriate authorities, but

do not seal the container for 48 hours to avoid pressure build-up. Clean up residue. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities
Store away from strong bases. Store away from oxidizing agents. Store away from amines.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	ACGIH	TWA:0.005 ppm	
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	OSHA	CEIL:0.2 mg/m3(0.02 ppm)	
CHROMATES	18540-29-9	OSHA	CEIL:0.1 mg/m3	
CHROMIUM (HEXAVALENT COMPOUNDS)	18540-29-9	ACGIH	TWA(as Cr(IV), inhalable fraction):0.0002 mg/m3;STEL(as Cr(IV), inhalable fraction):0.0005 mg/m3	A1: Confirmed human carcin.
CHROMIUM (HEXAVALENT COMPOUNDS)	18540-29-9	OSHA	TWA:0.005 mg/m3	SKIN, 29 CFR 1910.1026
CHROMIUM (VI), WATER SOLUBLE COMPOUNDS	18540-29-9	ACGIH	TWA(as Cr(IV), inhalable fraction):0.0002 mg/m3;TWA(as Cr):0.05 mg/m3;STEL(as Cr(IV), inhalable fraction):0.0005 mg/m3	SKIN; Resp+Dermal sensitizer, A1: Confirmed human carcin.
Chromium(6+), insoluble compounds	18540-29-9	ACGIH	TWA(as Cr):0.01 mg/m3	A1: Confirmed human carcin.
Chromium, insoluble salts	18540-29-9	OSHA	TWA(as Cr):1 mg/m3	
Water-soluble inorganic Cr(6+) compounds	18540-29-9	ACGIH	TWA(as Cr):0.05 mg/m3	A1: Confirmed human carcin.
Oxide glass chemicals	65997-17-3	Manufacturer determined	TWA(as non-fibrous, inhalable fraction)(8 hours):10 mg/m3;TWA(as non-fibrous, respirable)(8 hours):3 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit

CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Provide ventilated enclosure for curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection
None required.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended: Butyl Rubber
Nitrile Rubber

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron – Butyl rubber
Apron – Nitrile

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid
Color	Black
Specific Physical Form:	Resin Sat.Glass Tape
Odor	Slight Odor
Odor threshold	*Not Applicable*
pH	*No Data Available*
Melting point	*Not Applicable*
Boiling Point	*Not Applicable*
Flash Point	174.4 ºC [*Test Method:*Closed Cup]
Evaporation rate	*Not Applicable*
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	*No Data Available*

Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*No Data Available*
Vapor Density	*No Data Available*
Density	*No Data Available*
Specific Gravity	*Not Applicable*
Solubility in Water	Nil
Solubility- non-water	Nil [*Details:*water sulubility]
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Viscosity	*Not Applicable*

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Sparks and/or flames

10.5. Incompatible materials
Alcohols
Amines
Strong bases
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	**Condition**
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

May cause additional health effects (see below).

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion:
May be harmful if swallowed.
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Carcinogenicity:

Ingredient	CAS No.	Class Description	Regulation
CR 6 CMPDS	18540-29-9	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer
CR 6 CMPDS	18540-29-9	Known human carcinogen	National Toxicology Program Carcinogens
CR 6 CMPDS	18540-29-9	Cancer hazard	OSHA Carcinogens

Additional Information:
Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE2,000 - 5,000 mg/kg
Oxide glass chemicals	Dermal		LD50 estimated to be > 5,000 mg/kg
Oxide glass chemicals	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE-POLYPROPYLENE GLYCOL POLYMER	Dermal		LD50 estimated to be > 5,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE-POLYPROPYLENE GLYCOL POLYMER	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
P,P'-Methylenebis(phenyl isocyanate)	Dermal	Rabbit	LD50 > 5,000 mg/kg
P,P'-Methylenebis(phenyl isocyanate)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
P,P'-Methylenebis(phenyl isocyanate)	Ingestion	Rat	LD50 31,600 mg/kg
IRON OXIDE (FE3O4)	Dermal	Not available	LD50 3,100 mg/kg
IRON OXIDE (FE3O4)	Ingestion	Not available	LD50 3,700 mg/kg

Diphenylmethane-2,4'-diisocyanate	Dermal	Rabbit	LD50 > 5,000 mg/kg
Diphenylmethane-2,4'-diisocyanate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
Diphenylmethane-2,4'-diisocyanate	Ingestion	Rat	LD50 31,600 mg/kg
CHROMIUM (CR+6)	Dermal		LD50 estimated to be 200 - 1,000 mg/kg
CHROMIUM (CR+6)	Inhalation-Dust/Mist		LC50 estimated to be 0 - 0.05 mg/l
CHROMIUM (CR+6)	Ingestion		LD50 estimated to be 5 - 50 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Oxide glass chemicals	Professional judgement	No significant irritation
P,P'-Methylenebis(phenyl isocyanate)	official classification	Irritant
IRON OXIDE (FE3O4)	Rabbit	No significant irritation
Diphenylmethane-2,4'-diisocyanate	official classification	Irritant
CHROMIUM (CR+6)	Human	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Oxide glass chemicals	Professional judgement	No significant irritation
P,P'-Methylenebis(phenyl isocyanate)	official classification	Severe irritant
IRON OXIDE (FE3O4)	Rabbit	No significant irritation
Diphenylmethane-2,4'-diisocyanate	official classification	Severe irritant
CHROMIUM (CR+6)	similar health hazards	Corrosive

Skin Sensitization

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	official classification	Sensitizing
IRON OXIDE (FE3O4)	Human	Not classified
Diphenylmethane-2,4'-diisocyanate	official classification	Sensitizing
CHROMIUM (CR+6)	Human and animal	Sensitizing

Respiratory Sensitization

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Human	Sensitizing
Diphenylmethane-2,4'-diisocyanate	Human	Sensitizing

CHROMIUM (CR+6)	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Oxide glass chemicals	In Vitro	Some positive data exist, but the data are not sufficient for classification
P,P'-Methylenebis(phenyl isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification
IRON OXIDE (FE3O4)	In Vitro	Not mutagenic
Diphenylmethane-2,4'-diisocyanate	In Vitro	Some positive data exist, but the data are not sufficient for classification
CHROMIUM (CR+6)	In Vitro	Some positive data exist, but the data are not sufficient for classification
CHROMIUM (CR+6)	In vivo	Mutagenic

Carcinogenicity

Name	Route	Species	Value
Oxide glass chemicals	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
IRON OXIDE (FE3O4)	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
Diphenylmethane-2,4'-diisocyanate	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
CHROMIUM (CR+6)	Not Specified	Human	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
Diphenylmethane-2,4'-diisocyanate	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
CHROMIUM (CR+6)	Inhalation	Not classified for female reproduction	Rat	NOAEL 0.0002 mg/l	3 generation
CHROMIUM (CR+6)	Inhalation	Not classified for male reproduction	Rat	NOAEL 0.0002 mg/l	3 generation
CHROMIUM (CR+6)	Inhalation	Not classified for development	Rat	NOAEL 0.0002 mg/l	3 generation
CHROMIUM (CR+6)	Ingestion	Toxic to female reproduction	Mouse	LOAEL 6 mg/kg/day	12 weeks
CHROMIUM (CR+6)	Ingestion	Toxic to male reproduction	Mouse	LOAEL 6 mg/kg/day	12 weeks
CHROMIUM (CR+6)	Ingestion	Toxic to development	Mouse	LOAEL 57 mg/kg/day	during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
Diphenylmethane-2,4'-diisocyanate	Inhalation	respiratory irritation	May cause respiratory irritation	official classifica	NOAEL Not available	

				tion		
CHROMIUM (CR+6)	Dermal	kidney and/or bladder	Not classified	Human	NOAEL Not available	
CHROMIUM (CR+6)	Inhalation	respiratory irritation	May cause respiratory irritation	Human	NOAEL Not available	occupational exposure
CHROMIUM (CR+6)	Ingestion	kidney and/or bladder	Causes damage to organs	Human	NOAEL Not available	
CHROMIUM (CR+6)	Ingestion	hematoppoitic system | liver	Not classified	Human	NOAEL Not available	
CHROMIUM (CR+6)	Ingestion	nervous system	Not classified	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Oxide glass chemicals	Inhalation	respiratory system	Not classified	Human	NOAEL not available	occupational exposure
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
IRON OXIDE (FE3O4)	Inhalation	pulmonary fibrosis | pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Diphenylmethane-2,4'-diisocyanate	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
CHROMIUM (CR+6)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
CHROMIUM (CR+6)	Inhalation	immune system	Not classified	Rat	NOAEL Not available	90 days
CHROMIUM (CR+6)	Inhalation	heart | endocrine system | hematopoietic system | liver | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 0.02 mg/l	2 years
CHROMIUM (CR+6)	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 100 mg/kg/day	28 days
CHROMIUM (CR+6)	Ingestion	nervous system	Not classified	Rat	LOAEL 98 mg/kg/day	28 days
CHROMIUM (CR+6)	Ingestion	liver	Not classified	Multiple animal species	NOAEL Not available	
CHROMIUM (CR+6)	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL Not available	1 generation

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): D007 (Chromium), D008 (Lead), D009 (Mercury)

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations
Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not applicable

Health Hazards
Respiratory or Skin Sensitization
Specific target organ toxicity (single or repeated exposure)

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Trade Secret 1 - 5
P,P'-Methylenebis(phenyl isocyanate) (Benzene, 1,1'-methylenebis[4-isocyanato-)	101-68-8	1 - 5
P,P'-Methylenebis(phenyl isocyanate) (DIISOCYANATES (CERTAIN CHEMICALS ONLY))	101-68-8	1 - 5

This material contains a chemical which requires export notification under TSCA Section 12[b]:

Ingredient (Category if applicable)	C.A.S. No	Regulation	Status
CHROMIUM (CR+6) (CHROMIUM (HEXAVALENT COMPOUNDS))	18540-29-9	Toxic Substances Control Act (TSCA) 6 Banned or Restricted Use Chemicals	Applicable

15.2. State Regulations
Contact 3M for more information.

15.3. Chemical Inventories
Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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